

WHAT IS CLAIMED IS:

1. A trip assembly for interrupting the flow of current upon the detection of excess current in a circuit breaker, the trip assembly comprising:
 - 5 a trip bar including a trip finger;
 - a stationary armature bracket including a base portion and a spring-support portion;
 - a movable armature including a first end, a spring tab, and a trip-actuating surface, said first end of said movable armature being coupled to said base portion of said armature bracket, said trip-actuating surface being disposed proximate said trip finger; and
 - 10 a spring directly coupled at its respective ends to said spring-support portion of said armature bracket and to said spring tab of said movable armature.
- 15 2. The trip assembly of claim 1, wherein said trip finger has a rolled contact edge.
3. The trip assembly of claim 1, further comprising a stationary yoke separated from said movable armature by a magnetic gap, said magnetic gap being kept constant for a plurality of circuit breaker ratings.
- 20 4. The trip assembly of claim 3, wherein said magnetic gap is between approximately 0.085 inches and approximately 0.095 inches.
- 25 5. The trip assembly of claim 4, said movable armature further including two yoke surfaces, each of said yoke surfaces being aligned with respective ones of the two armature surfaces of said stationary yoke.
6. The trip assembly of claim 1, wherein said spring is inclined at an angle α relative to a vertical axis of said armature bracket, said vertical axis being substantially perpendicular to said base portion of said armature bracket.
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7. The trip assembly of claim 6, wherein said angle α is approximately 17 degrees.
8. The trip assembly of claim 1, wherein said trip finger is separated from said movable armature by a trip-bar gap, said trip-bar gap being kept constant for a plurality
5 of circuit breaker ratings.
9. The trip assembly of claim 8, wherein said trip-bar gap is between approximately 0.040 inches and approximately 0.050 inches.
10. The trip assembly of claim 1, said armature bracket further including a stop tab
10 for holding said movable armature in a default position, said stop tab being located proximate said spring tab of said movable armature.
11. The trip assembly of claim 1, said first end of said movable armature being
15 rotatively connected to said base portion of said armature bracket.
12. The trip assembly of claim 1, said movable armature having a plurality of cutouts for reducing the mass of said movable armature.
- 20 13. The trip assembly of claim 1, wherein said spring is one of:
a first spring having a first-spring constant selected to cause a tripping
action in a circuit breaker having a first current rating; and
a second spring having a second-spring constant selected to cause a
tripping action in a circuit breaker having a second current rating.
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14. A method of assembling trip-assembly components into a trip-assembly housing,
comprising:
inserting an armature bracket into a trip-assembly housing, said armature
bracket including a base portion and a spring-support portion;
30 operatively connecting a movable armature to said base portion of said
armature bracket, said movable armature including a spring tab;

directly coupling a first end of a spring to said spring-support portion of
said armature bracket for exerting a direct force on said armature
bracket; and

5 directly coupling a second end of said spring to said spring tab of said
movable armature for exerting a direct force on said movable
armature.

15. The method of claim 14, further comprising positioning said spring at an angle α
relative to a vertical axis of said armature bracket, said vertical axis being substantially
10 perpendicular to said base portion of said armature bracket.

16. The method of claim 15, wherein said angle α is approximately 17 degrees.

17. The method of claim 14, further comprising positioning said movable armature at
15 a predetermined distance from a stationary yoke, said predetermined distance ranging
from approximately 0.085 inches to approximately 0.095 inches.

18. The method of claim 14, further comprising positioning said movable armature at
a predetermined distance from a trip finger of a trip bar, said predetermined distance
20 being between approximately 0.040 inches and approximately 0.050 inches.

19. The method of claim 14, further comprising:
providing a stop tab in said armature bracket; and
supporting said movable armature in a default position with said stop tab
25 of said armature bracket.

20. The method of claim 14, further comprising:
selecting said spring to be a first spring having a first-spring constant for
causing a tripping action in a circuit breaker having a first current
30 rating; or

selecting said spring to be a second spring having a second-spring constant for causing a tripping action in a circuit breaker having a second current rating.

